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GIS Professional Certification 2.0: Putting GIS to the Test

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Presented By: Nancy J. Obermeyer, GISP

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GISP 2.0: Putting GIS to the Test

Presentation Outline

The GISP: A brief history

GISP 1.0: Portfolio requirements

GISP 2.0: The exam

What this means for GISPs and
aspiring GISPs



The GISP: A Brief History

- 1991 AAG Panel: “Is GIS a new (academic) discipline?”
 - Bob Aangeenbrug (organizer), Mike Goodchild, Derek Gregory, David Cowen, Robert Sack
 - General consensus: GIS does not stand alone as a discipline



The GISP: A Brief History

- My take (and my 1992 AAG presentation)
 - “... while GIS does not qualify as a discipline, it does possess the characteristics of a profession.”*
 - Suggested that GIS community explore creation of a new professional organization
 - Suggested certification process**

*N. Obermeyer 1994. “GIS: A New Profession?” *The Professional Geographer*, 46(4) pp. 498-503.

** N. Obermeyer 1993 “Certifying GIS Professionals: Challenges and Alternatives,” *Journal of the Urban and Regional Information Systems Association* (5:1),pp. 67-76.



The GISP: A Brief History

- Characteristics of a profession
 - Based on Max Weber*, D.L. Pugh**
 - Unique body of knowledge (expertise)
 - Rising professional organization (AAG, GIS/LIS, URISA, ACSM, AM/FM International, ASPRS)
 - Shared language (GIS, raster, vector, DLG) – jargon?
 - Professional Culture and Lore (recent passing of Roger Tomlinson, for example)
 - Code of Ethics

*M. Weber. 1946. *From Max Weber: Essays in Sociology* (translated by H.H. Gerth & C.W. Mills). New York: Oxford University Press.

**D.L. Pugh. 1989. "Professionalism in Public Administration: Problems, perspectives, and the role of ASPA," *Public Administration Review* 49:1-8.



The GISP: A Brief History

- Growing interest—pros and cons of GIS certification*
 - Bob Aangeenbrug, Mike Goodchild, Bill Huxhold, Karen Kemp, Rebecca Somers, Lyna Wiggins, David DiBiase, Nancy Obermeyer, others
- GIS as a professional identity
- Certification for protection of the public

* e.g.; Rebecca Somers, 2000, "Defining the GIS Profession, and Debating Certification and Regulation, in *Geo Info Systems*, May 2000, pp. 22-29.

<http://www.spectroscopyonline.com/spectroscopy/data/articlestandard/geospatialsolutions/362002/30439/article.pdf>



The GISP: A Brief History

- New motivation
 - Move by licensed surveyors to pass laws to require surveying licensure for GIS professionals working with public data (North Carolina, for example) in mid-to-late 1990s



The GISP: A Brief History

- 1997 URISA BoD created certification committee
 - Chairs: Nancy Obermeyer (1998-2001); Bill Huxhold, (2001-2003)
 - Members from public organizations, industry, academia
 - Bob Angeenbrug, Heather Annulis, Bob Barr, William Bowdy, Judy Boyd, Al Butler, Tim Case, Roger Chamard, Will Craig, David DiBiase, Peirce Eichelberger, Joe Ferreira, Keith Fournier, Steven French, Cindy Gaudet, Josh Greenfield, Ann Johnson, Karen Kemp, Jury Konga, Joel Morrison, Sherman Payne, Michael Renslow, Warren Roberts, Mark Salling, Joe Sewash, Rebecca Somers, Curt Sumner, Geney Terry, Eugene Turner, Barry Waite, Lynda Wayne, Suzanne Wechsler, Elaine Whitehead, Lyna Wiggins, Thomas Wikle



The GISP: A Brief History

- To test or not to test?
 - UCGIS Core Curriculum and Body of Knowledge under construction
 - Multiple groups championing GIS
 - GIS evolving at a rapid pace
- Portfolio review seen as a good starting point, given the active evolution of the GIS&T Body of Knowledge



The GISP: A Brief History

- GISCI became a reality in 2004
 - GIS Professionals are more than just casual users
 - Defines and qualifies the profession to protect its stakeholders from people who claim to have expertise but do not actually have this knowledge
 - Original GISCI board members: Linda Wayne (Pres.); Peirce Eichelberger, Nancy Obermeyer, Bill Huxhold, Karen Kemp, Doug Richardson, Cy Smith, Tom Tribble, Lyna Wiggins
- Membership based on organizations with GIS expertise and interests



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GISCI Member Organizations





The GISP: A Brief History

- Pilot Group Certified: October 2003
 - Georgia GIS (mostly)
- First Group Certified after Pilot: January 2004
- 5,500 GISPs as of May 6, 2014



Portfolio Requirements

- Educational attainment
 - Bachelor's degree with some GIS courses(or equivalent)
- Professional experience
 - Four years in GIS application or data development (or equivalent)
- Contributions to Profession
 - Annual membership and modest participation in a GIS professional association (or equivalent)



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Minimum Category Points

Educational Achievement	30 points
Professional Experience	60 points
Contributions to the Profession	8 points
Additional (Flex) Points in any of the three Categories:	52 points
Total =	150 points

Flex points allows one to make up for a lack in one category with an excess in another



Additional Requirements

- **Code of Ethics & Rules of Conduct**
 - Obligations to ...
 - Society
 - Employers and Funders
 - Colleagues and the Profession
 - Individuals in Society





Additional Requirements

- **Renewal of Certification**
 - Every five years
 - Minimum points in two categories





The Exam: Background

- The portfolio review will remain
 - GISPs must still pass the portfolio review
- The exam will be added first half of 2015
 - GISPs will be required to pass the certification exam
 - “pass/fail”



The Exam: Background

- **Purpose**
 - To strengthen the GISP certification and advance the GIS Profession
 - Bring GISP up to professional certification standards so that the GISP will be accreditable by organizations such as the National Commission for Certifying Agencies (NCCA) and the American National Standards Institute (ANSI)
 - <http://www.credentialingexcellence.org/ncca>
 - <http://www.ansi.org/>



Additional Requirements

- **Code of Ethics & Rules of Conduct**
 - Obligations to ...
 - Society
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 - Colleagues and the Profession
 - Individuals in Society



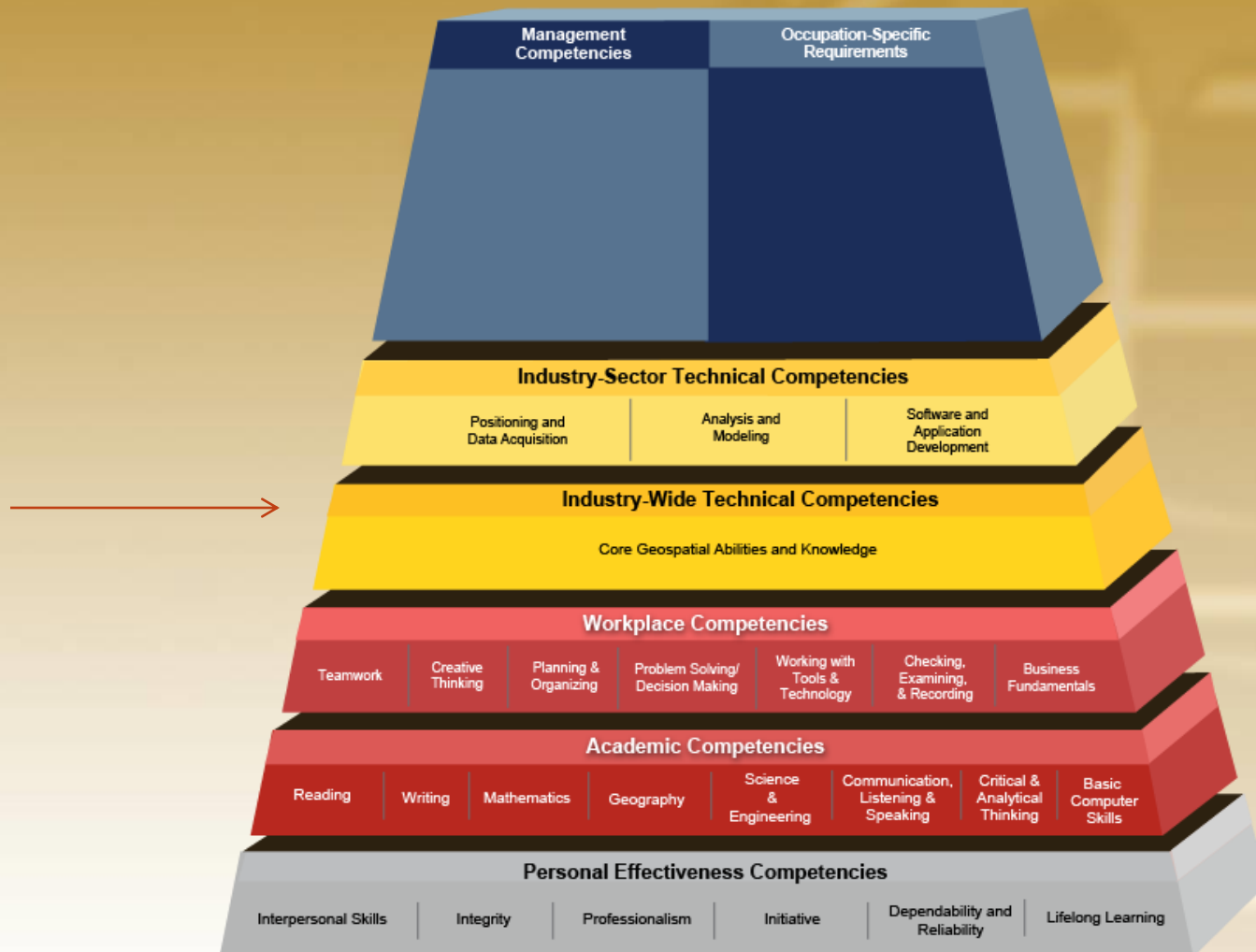


Development of Exam

- Follows professional certification standards
- Based on Geospatial Technology Competency Model (GTCM) of the U.S. Department of Labor
 - Fourth tier: Industry-wide technical competencies
 - <http://www.careeronestop.org/competencymodel/competency-models/geospatial-technology.aspx>



Development of Exam





Development of Exam

- Steps in exam development
 - Validity study--Job analysis
 - Exam Blueprint Development
 - Item (Question) Writing (finished)
 - Exam Construction
 - Pilot Exam
 - Standard Setting



Development of Exam

- Job analysis (September - November 2013)
 - Involved input from hundreds of GIS Professional job incumbents from full range of GIS jobs and sectors
 - Identify core technical tasks and knowledge, skills, and abilities (KSAs) for GIS Professional jobs
 - Tasks and KSAs are linked together
 - Tasks and KSAs ranked via an extensive survey
 - Consideration of GIS&T Body of Knowledge included



GIS&T Body of Knowledge

Geographic Information Science and Technology Body of Knowledge

Geographic Information Science & Technology Body of Knowledge

Edited by David Williams, Michael Dolbren, Ann Johnson, Karen Kemp, Ann Taylor Leach, Brandon Peters, and Elizabeth Weiss
UNIVERSITY CONSORTIUM FOR GEOGRAPHIC INFORMATION SCIENCE

Analytical Methods

- AM1 Academic and analytical origins**
 - Academic foundations
 - Evolution of GIS and GIScience
 - Interdisciplinary research
 - Methodological approaches
 - Professionalization
- AM2 Query operations and query languages**
 - Query languages
 - Query processing
 - Query optimization
 - Query evaluation
 - Query rewriting
- AM3 Geographic measures**
 - Distance
 - Area
 - Perimeter
 - Volume
 - Centroid
 - Direction
 - Flow
 - Weight
 - Value
 - Index
 - Ratio
 - Rate
 - Rate of change
 - Rate of increase
 - Rate of decrease
 - Rate of growth
 - Rate of decline
 - Rate of change
 - Rate of increase
 - Rate of decrease
 - Rate of growth
 - Rate of decline
- AM4 Basic analytical operations**
 - Selection
 - Projection
 - Transformation
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Exam Creation Process

EXAM BLUEPRINT: Exam Components

- Knowledge Category Weight
- Conceptual Foundations 12%
- Cartography & Visualization 14%
- GIS Design Aspects & Data Modeling 29%
- GIS Analytical Methods 17%
- Data Manipulation 15%
- Geospatial Data 13%



What to Expect

- Exam pilot late 2014
- GISCI Geospatial Core Technical Knowledge Exam[®] summer 2015
- All GISP[®] certification applicants will be required to take the exam once it starts



What to Expect

- Minimal change in the portfolio component
- 5 year renewal period
- Renew without exam



Exam Details

- **Format: Selected Response**
 - Multiple choice, matching, ordering, etc.
- **How will exam be made available? (Initially)**
 - At selected testing locations, to be determined (e.g.; test centers, special locations, perhaps at conferences)
 - Proctored
 - Will not be available online
- **Methods and locations may expand over time**



Exam Details

- What exam preparation resources will be available?
 - Exam prep materials:
 - Exam content areas
 - Exam format
 - Recommended study resources
 - Exam process
 - Instructor-led sessions
 - Variety of accessible formats
 - At conferences
 - Webinars



Exam Details

- Who must take the exam?
 - New GISP candidates (once the exam is instituted—est. mid 2015)
 - Aspiring GISPs may take the exam at any time, even before meeting the full GISP certification criteria (portfolio)
 - Taking the exam initiates the GISP application process
 - *Existing GISPs will **NOT** need to take the exam for renewal*



- More than just an exam...
- Alignment of GISP® certification and GISCI with accepted professional certification development standards and practice
- Validation of GISP® certification
- Stronger foundation for additional/related GIS certifications



For More Information

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